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OFFICE OF COOPERATIVE EXTENSION WORK  
THE BUREAU OF PLANT INDUSTRY COOPERATING

VOLUME 4

MARCH, 1926

NUMBER 1

# The Extension Pathologist

"TO PROMOTE ECONOMIC CROP PRODUCTION,  
IMPROVE THE QUALITY OF THE PRODUCTS, AND  
REDUCE WASTAGE IN STORAGE, TRANSIT, AND AT THE MARKET"

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THE EXTENSION PATHOLOGIST

Volume 4

Number 1

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## FARMER PROJECT LEADERS BRING RESULTS IN ILLINOIS

Last October I sat at a conference table with the agronomists and plant pathologists of the University of Illinois and listened to the plans which were being made for a winter school for farmer project leaders. The plan called for taking three or four weeks to do this work, giving instruction of one week's duration to each group of farmers coming in. This instruction would have to do largely with the disease factor as it appears in the germination test. Having received this training, the farmer leaders would be in a position to return to their communities and help their neighbors with germination work.

In arranging for this school on corn diseases Mr. J. C. Hackleman, extension agronomist, requested the assistance of pathologists in carrying out the work outlined in his paper, which appeared in the Extension Pathologist for March and April, 1925, one step further. In this paper, Mr. Hackleman gave some tremendously interesting information concerning the extent to which farmer project leaders are being used in Illinois. When reading this last spring I wondered if the method could be used elsewhere in other kinds of extension activities related to disease control.

During my stay at Urbana, there was opportunity to discuss this point with Farm Adviser C. C. Burns, of Champaign County. I found him enthusiastic over the possibilities in this sort of work. He said that when the corn program was first started in this county he was often told that "the project leader idea won't work." His story of the way in which the plan has worked and is working contained so many things of general application that I asked him to put it in writing. F.C.M.

### The Champaign County Corn-Improvement Project

By C. C. Burns, Farm Adviser,  
Champaign County, Ill.

The story of corn improvement in Champaign County began in 1923 with the decision to build a definite program of work around the central theme of rural community leadership. In this program, corn, soils, poultry, and several minor projects were to be used incidentally with the larger problem. During the fall of 1923, the county agent personally gave 24 demonstrations on the field selection of seed corn.

Project leaders appointed and trained. During the winter of 1923-24, the work of corn culling was started by the appointment of two corn leaders in each of the 28 communities of the county. Community directors in each section, in conference with the county agent, selected these leaders. A school for corn leaders was held early in the winter at which they were taught the various steps in culling corn according to the physical appearance of the ears.





The five points used in physical selection were: Comparatively heavy weight of ears, high lustre, freedom of shanks from infection, freedom from injured or mouldy kernels, and freedom of kernels from starchiness. Symptoms of disease were shown and considerable practice was given to the leaders in the culling work.

Community demonstration meetings. The next step in the development of the program was the planning of the community demonstration meetings in each of the communities of the county. Three committees of three men were appointed in each community: A publicity committee, an arrangement's committee, and a demonstration committee. The publicity committee made a local survey of men who wished to bring seed corn to the meeting; the arrangement's committee obtained a suitable room, provided tables and other necessary equipment; the community director named a time for holding the meeting, and the county agent with the two corn leaders acted as a committee for putting the demonstration on during the day.

Additional Committee served during second year. During the second year that these corn meetings were held, another committee was added to take charge of the dinner which was served and the entertainment given during the noon hour. The committee on advertising the meeting, instructed each farmer to bring just as much seed corn as he wanted to bring - nothing less than 1 bushel was considered.

Community demonstration meetings successful. The success of these community demonstrations was largely owing to the fact that all steps were carefully planned and that 3 or 4 different committees with 8 to 12 men serving on them were interested. The amount of corn that was physically selected at these meetings varied from 7 to 53 bushels during the winter of 1924. During the winter of 1925, the bushels varied from 11 at the smallest meeting, to 86-1/2 bushels at the largest meeting. This was corn actually gone over.

Community demonstration plots planted by corn leaders. In order to carry on the corn project throughout the year and to actually demonstrate the value of physically selecting seed corn to reduce disease, one or two men who consented to cooperate in each community were provided with seed corn for what was known as a community demonstration plot. Six or eight ears as free of disease as it was possible to select from the corn that each man brought to the meeting were used. The same number of ears from each cooperator's corn was also selected to illustrate the diseased condition - that is, light-weight, lustreless ears, infected shanks and starchy kernels. Both the good and the poor seed were put on the germinator in order to find any dead ears in either lot. Care was taken to remove these ears and none other in order to make a fair test of physical selection. Each cooperator was asked to plant the good seed and the poor seed in rows side by side through one of his main fields, keeping this plot corn away from the edge of the field.





Seed plots planted by 140 others. Forty-three of these community demonstration plots were planted by cooperators, most of whom were the corn leaders. One hundred and forty other men asked to have a special selection made of a few ears in order that they might have a seed plot to plant along the side of one of their fields.

Local leaders active in spring of 1924. The attendance during the 1924 series of 24 community meetings was 908 men, and 583 bushels of corn were selected.

A meeting of corn leaders was held in March, 1924, to plan a series of spring meetings on the community plots which were to be planted. A form of report was worked out in which the leaders were to make counts of the strong and weak seedlings in rows growing side by side from the good seed, the diseased seed, and the ordinary corn in the field. Thirty-five hills were counted at each of 3 different places. Of the 43 community plots planted, 33 reports were received from the leaders. Marked differences were noted in the demonstration plots between the good and poor seed. The cold, wet weather during the spring was very severe on the diseased seed. In 3 different cases, the 2 rows of good seed were the only rows which grew in the entire field, owing to the failure of the ordinary seed.

The leaders held demonstrations on practically all the 33 plots from which reports were made. These meetings were held at the time the counts of the stand on the plots were taken. The following figures show the average results on the 33 plots. The counts were made between the first and second cultivation.

	<u>Plants per acre</u>	<u>Per cent strong</u>	<u>Per cent weak</u>
Ordinary . . . . .	6,357	80.52	19.48
Good . . . . .	7,293	85.24	14.76
Poor . . . . .	6,240	75.50	24.50

This series of demonstrations was very effective in showing the value of physical selection, the bad season making the difference more pronounced than usual. These plots were watched throughout the growing season and striking conditions were shown on a number of them.

Records obtained in fall of 1924. In the fall, husking results were obtained on the 32 plots. The good seed outyielded the poor seed 9.68 bushels per acre as an average of all the plots. Considering only the marketable corn on the plots, the difference in yield was 11 bushels per acre. These results were reported through the use of three calendars issued in January, February, and March. A complete report of the progress of the corn project was also given at the annual meeting in December.

Corn leaders field-selection school. In the fall of 1924, a school on field selection was held for all the corn leaders. A field demonstration was put on, showing the method of selecting the plants most resistant to disease. The three points emphasized in this demonstration were: The selection of plants having good roots, sound stalks, and protecting husks. The corn leaders





in cooperation with their community director set a time and place for their own local demonstrations, and the county was thoroughly covered. All the meetings were held between the fourth and the eighth of October. The work was brought to the membership at the most ideal time for seed selection throughout the county, a service that would not have been possible if the meetings had all been given by the county agent personally.

Leaders conduct meetings without assistance. This was the first time that the leaders had been asked to hold meetings themselves, and in which they took entire responsibility. The idea that farmers could and would carry on their own meetings was well received, and the results to the leaders and to the membership were very satisfactory. Our leaders are coming to appreciate the problems of extension work and have shown a much greater sympathy toward the difficulties which confront county agents than they possibly could otherwise.

Winter meetings 1924-25. During the winter of 1925 a county committee was appointed of five corn leaders who met with the county agent and the extension specialist from the college. It was recommended by this committee that the work in physical selection be continued in order to clinch it as far as possible with all the membership. This proved to be a very wise move. The corn leaders did a large part of this work at the meetings. The county agent's time was largely free to take the corn which had been physically selected and assist a large number of men in getting corn selected for seed plots. Assistance was given to 230 men in selecting corn for these plots. The size of the plots varied from an acre to 22 acres. The corn selected for these plots was enough to plant an acreage of 1,018 acres. The results of the second series of winter meetings showed an attendance of 1,013 men and 1,115 bushels of corn selected - a considerable increase over the first year's work.

Germination schools. During the winter it was planned to prepare the 2 corn leaders in each community for the work a year or two ahead. Consequently, 3 schools on germination and reading for corn diseases were planned - one was given in January, one in February, and the last one in March. The first school dealt merely with the question of vigor in seedlings. A study was made of four or five 8-day seedlings to determine the length and comparative diameter of the sprouts, the number of roots, their total length, and amount of branching. The other 2 schools dealt with 5 corn diseases; namely, Diplodia, Scutellum, Fusarium, Cephalosporium, and Gibberella. A total of 49 out of 54 leaders took all the work at these 3 schools.

The characteristics of these five diseases as they appeared on the germinating seedlings were written up for each leader and furnished him in a four-page pamphlet. The leaders were asked to do some germination work at their own homes, using common incubators, a number of them being able to gain some very practical experience.

During the fall of 1925 the leaders were again called upon to put on a series of field-selection meetings. A very loyal response was received from them, and 18 community demonstrations were held.





Incentive for work by leaders. The leaders have become very much interested in the work as they obtained much information which could not have been obtained in any other way. Money payments for their assistance would not have been equivalent in value to the training which they have received in the course of this work. It would have been extremely hard to have procured the money from our own funds to pay the leaders, and the amount and quality of their work would have been doubtful. But money is not the medium of exchange of the extension service, neither is it its most valuable contribution. Our leaders have been paid in experience and information, the equal of which could not have been received in any other way. In return the leaders have given a service to our membership we could not have rendered otherwise and, in addition, a loyalty that we could not purchase.

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COUNTY AGENTS ASSISTED IN DEVELOPMENT OF PLANS  
FOR PLANT-DISEASE-CONTROL ACTIVITIES

At this season of the year the extension pathologists in the Northern States are at work with the county agents on their plans for the year. At such a time it is interesting to consider methods used in fields other than our own. As a matter of fact, some of our colleagues are assisting county agents map out a plan in plant-disease control somewhat as outlined below. F.C.M.

Plans that Work

By H. W. Hochbaum, Agriculturist,  
Office of Cooperative Extension Work

A most successful type of working plan has come into use in several Eastern States. This plan is marked by four important features.

- (1) It is more detailed and specific than the plans which have characterized most projects heretofore.
- (2) It assures continuity of teaching effort.
- (3) It spreads the teaching effort over a sufficient period of time, so that desire may be created and confidence won before action is sought.
- (4) It brings about more effective working relations between specialists, county extension agents and supervisors, because all join in working out the details.

Experience shows that no matter how important is the practice, nor how fine the vision of method may be, if the method is not outlined so that every small detail has a place, the most effective extension teaching is not done. Above all, the county extension agent, the man on the firing line, must be part of that plan. It must be his problem to work it through for himself. He needs to feel and see clearly his own responsibilities in correctly planning the local application of methods of teaching. Each means and agency, each teaching device must be listed, and the details of how and when these will be used need to be outlined as clearly as a blue print. Without these, continuity and systematic work can not be assured.





COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

U. S. Department of Agriculture  
and State Agricultural Colleges  
Cooperating

Extension Service, Office of  
Cooperative Extension Work,  
Washington, D. C.

OUTLINE OF REGISTERED BULL CAMPAIGN

THE STEPS	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
SURVEY	Summarize for county and communities.							
BULL SUPPLY	Notify breeders of proposed campaign, stating probable demand for healthy bulls backed by records of 350 pounds fat or 10,000 pounds milk.		Make up office lists of breeders having bulls for sale in and out of county.	Keep in touch with breeders on supply of bulls.				
MAKING SALES			Begin to direct interested prospects to sources of supply. Agent or specialist accompany, if time permits.	Arrange trips for groups of prospects to sources of supply. Agent or specialist accompany when at all possible; 8 or 10 men would make good-sized party.	Continue trips for groups of prospects.	Continue trips for groups of prospects.	Continue trips for groups of prospects.	Continue and complete trips with groups for the year.
MEETINGS	Hold county-wide meeting of leading dairymen, creamerymen, bankers, businessmen, feed dealers, and newspapermen.		Hold 6 twilight barn meetings at community leaders. Get names of men promising to go on one of trips for bulls.	Hold at least 6 or more twilight meetings at barns. Have local leader speak on campaign at local grange.	Hold 6 more twilight barn meetings. Have few lantern slides shown at movies.	Continue lantern slides at movies.	After silage filling hold few more meetings to clean up.	
NEWS NOTES	Publish results of survey. Write up county-wide meeting, giving names of committees and program adopted. Write up successful local dairymen.	Start question and answer column in papers. Write up more local men give purebred-bull facts based on test-association records, notes, and pictures of last year's bulls.	Use slogan on letters and news notes throughout year. Publish list of registered bull owners of county. Continue question and answer column and write-ups of local men. Use testimonials of purebred bull owners.	Announce plan of trips to buy bulls. Publish list of new bull buyers. Head write-up like "John Jones wears smile a mile long. He bought a Real Bull." Use slogan constantly.	Publish list of new bull buyers. Continue local write-ups. Arouse pride asking that county be put in lead in per cent of registered bulls.	Continue printing names of recent bull buyers. Write up records back of new bulls. Continue data on value of record bulls.	Announce concluding trips to buy bulls. Give status of campaign.	Publish complete results of campaign. Announce campaign will continue after January 1, 1926.
CIRCULAR LETTERS OR CARDS		Send card or letter to mailing list, giving result of county-wide meeting and announcing campaign.	Send out card or letter showing county and number of registered bulls by townships. Send out letter signed by president of bankers' association.	First day of month send to mailing list letter announcing groups of farmers will be taken to breeders to inspect bulls for sale. Enclose card to be returned by those interested.	Send out letter giving buyers of bulls to date and announcing continuation of trips by groups to inspect and buy bulls.	Send out letter or card to unresponsive prospects telling that last trips of year will be made to breeders to inspect good registered bulls.	By card or letter first of month, urge remaining prospects to make date with agent to go for bulls.	Send letter thanking project committee-men and cooperators.
VISITS	Visit dairy-project leaders prior to county-wide meeting, enlisting their enthusiastic support. Ask each to be responsible for placing 3 bulls.		Begin visiting prospects first in those communities not covered last year. Visit or phone breeders to make sure of supply of good bulls.	Visit prospect list by townships, explaining campaign. Show pictures of some bulls recently bought.	Continue visits to prospects. Check up on community leaders, asking if each has secured his quota of 3.	Visit remaining prospects to clean up.	Spend all available time on trips with buyers.	
EXHIBITS, POSTERS, ETC.		Distribute and post true-type bull pictures and milk can map showing results of grading up with purebred bull. Attach mention of county agent's office.	Finish distributing posters and pictures covering granges, creameries, post offices, stores, etc.	Erect one or more big window displays. Paste pictures of bulls (mostly local ones) on large beaver board. Give figures on superior products.	Continue posters, pictures, and displays. Move beaver-board display to other towns.	At county or local fairs use bull exhibit to boost campaign. Add pictures of some new bulls to display.	Continue pictures, posters, and displays.	
CONTESTS, TRIALS, OR FUNERALS		Publish rules of slogan contest approved by a committee of banker, newspaperman, farmer and county agent. Get out rules first of month.	Close slogan contest first of month. Announce winners.	Hold mock trial or scrub bull funeral. Have every grange stage a mock trial, some bull funeral, or debate.	Check up on granges to see that trial or other act is staged.			
TOURS AND ROUND-UP			Visit herds headed by good bulls. Invite everybody, including news reporters.					Last of month hold banquet for buyers and committeemen. Show bull movies.
MAP SHOWING PROGRESS OF CAMPAIGN			Use large map of county in office, with colored pins showing progress of campaign.		Keep map up to date. Have newspaper reporters drop in to see it and make news item.			Complete county map showing full results of campaign by townships.





The work chart shown here is such a blue print. It details all the means and agencies to be used in advancing a large project and approximates the dates of work. Moreover, enough detail is given to specify for what purpose each device is used. Such a chart should be worked out by each agent for each large project, with the help of supervisor and specialist. Then application of method to local needs and circumstances can be made.

The making of such county work charts will be facilitated and much better local plans will result, if the specialist, or a committee of specialists and supervisors of county extension agents, first draw up a basic plan for the district or State as a whole. In this plan, the specialist sketches the whole teaching program for a project listing the important teaching means and agencies, as well as the method of using them. The more working detail the better, for better county work charts, like the one illustrated, will result if the specialist first thinks out and plans the teaching scheme for himself.

The following is an outline of the principal steps to be covered in building a work chart like that shown:

- (1) Diagnose problem accurately.
  - (2) Develop a practical economic solution.
  - (3) Determine the single practices involved.
  - (4) Provide a sure and economic supply of seeds, stock, lime, or other material or equipment needed.
  - (5) Awaken interest of leaders and obtain approval of tentative plans.
  - (6) Organize and train local leaders.
  - (7) Survey farms to find names and conditions of farmers who should benefit by adopting the practice.
  - (8) Choose and plan for the use of the most appropriate means and agencies to attract the attention of those who should be reached with the practice.
  - (9) Same to develop interest.
  - (10) Same to create desire.
  - (11) Same to reenforce above and instill confidence.
  - (12) Same to procure favorable action from the number selected as a goal.
  - (13) Measure results obtained in numbers adopting practice.
  - (14) Choose and plan for the use of the most appropriate means and agencies to maintain satisfaction.
  - (15) Review results, set new goals for ensuing year, and revise plans.
-





### PATHOLOGISTS HOLD EXTENSION CONFERENCE IN KANSAS CITY

As a part of the program of the American Phytopathological Society, a conference on extension work was held at the Hotel Baltimore in Kansas City on December 28. This was well attended, not only by extension pathologists, but also by research workers and representatives of commercial agencies. Representatives were present from 16 States, the District of Columbia, and Japan. The States which were represented at the conference were as follows: Colorado, Florida, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Minnesota, Nebraska, New York, Ohio, Pennsylvania, Virginia, West Virginia, and Wisconsin.

As previously planned, Mr. F. C. Meier, who acted as chairman, conducted the session as a round-table conference, attention being centered on the two following topics: (1) Special service work for growers in communities where the soil is largely given to the production of a single crop, and (2) training county agents in plant-disease control.

Speaking of the first, Dr. M. F. Barrus, New York, reviewed the history of the development of the special spray service that is now in force in 15 counties of the State. As emergency work during the war looking toward food conservation, about 16 men were placed in various counties wholly supported by the emergency State funds. These men worked through the farm-bureau organizations and assisted the growers of apples, potatoes, and other special crops by keeping them informed of the proper time to spray and the materials to use. This service was so well thought of that when the State support was withdrawn, the growers themselves assumed the responsibility of financing the movement. This service extends over 6 months of the crop-producing period of the year. Two types of men are employed, viz, graduate students or assistant county agents. The success of this type of work lies in the fact that the timeliness of the spray is all-important since scab of apples or late-blight of potatoes and other diseases become epidemic only after several days of rain. By having special weather reports, these service men are able to send out the warning through a relay system to all the growers in each important community in the county and the spray is applied before the rain.

Mr. Sherwood of West Virginia reviewed the growth of the special service to the apple growers. These are all large orchards ranging from 100 to 800 acres. Here the extension pathologist himself became the active agent in giving information as to the timeliness of application and the materials to be used. This was likewise done through the medium of the telephone, letters, cards, and the like. Approximately 1,000,000 apple trees received the benefit of the service. As a result 90 per cent of the fruit grown is now packed according to standard grades where prior to the initiation of the service only 10 per cent was merchantable.

Expression from other extension pathologists indicated that no two situations were exactly alike. In fact, conditions were shown to be so diverse that methods applicable in one State were wholly impractical in others. Yet one point stood out as a patent fact common to all, and that was that result demonstrations were very necessary for two reasons: (1) To determine where and under what conditions it is practical and profitable to spray, and

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(2) to convince the growers of the value of disease-control methods, thereby establishing confidence. Mr. DeBusk from Florida indicated that data obtained from result demonstrations made it possible to discontinue a number of applications of spray in rust-mite control at a great saving in the cost of production. With the two facts indicated above well established, a special service becomes not only very desirable, but also relatively easy to put into operation.

The chief lines of thought developed regarding the training of county agents in plant-disease control are viz, (1) necessity of giving the agents an appreciation of the size and the complexity of the problem of disease control, with some few fundamentals as to symptoms and practical control measures, and (2) teaching the agents how to teach.

The extension pathologist must first be a salesman. He must learn to size up a situation whether it is with growers or with county agents and deal with it from a modern psychological and pedagogical standpoint. Plant-disease control is one of the most difficult things to sell, and every available method must be called into action. As Professor Whetzel put it, "The county agent should be taught enough plant pathology so that he will readily recognize the fact that he is incompetent to prescribe without the help of the trained specialist in plant pathology." In other words, a little knowledge is a dangerous thing, as attested by several instances where remedial measures had been prescribed that had cost the growers handsomely through lack of information and overconfidence on the part of the county agent.

Besides the subject matter regarding some of the more common plant diseases of his county, the county agent should be taught the most effective methods of teaching farmers the use of economical controls. Here the use of result demonstrations, special schools, annual meetings of county agents, mimeographed articles, pictures and charts, plant-disease surveys, and the like, are all valuable in teaching methods. In other words, it was brought out that it is equally important to know HOW to present the matter of disease control so that it will be accepted as it is to know WHAT to present. The county agents will largely copy the methods of the extension pathologists with whom they work. The moral is very evident.

At the close of the meeting those present expressed themselves as being well pleased with the afternoon's work, and suggested that arrangements be made for this same type of program in 1926.

(Signed)

M. R. Ensign  
C. E. Temple  
Donald Porter





## NEWS NOTES

### Smut-Control Campaign in the Spring-Wheat Area

February 21 to 27 was smut prevention week in the Dakotas, Minnesota, and Montana. Estimates based on grain-inspection records and plant-disease survey reports indicate that in 1925 bunt caused the farmers of these four States over \$8,000,000 loss, approximately \$5,000,000 on reduction in yield, and at least \$3,000,000 in smut discounts. Realizing that grain held for planting this spring was contaminated, agricultural leaders in the four States planned a seed-treatment campaign. The Northwest Grain Smut Prevention Committee was formed. This was composed of members from the following: Minneapolis Civic & Commerce Association, Minneapolis Chamber of Commerce, Equity Cooperative Exchange, St. Paul; Duluth Board of Trade, Minnesota Farm Bureau Federation, U. S. Department of Agriculture, Northwest Farm Press, Minnesota Agricultural College, Montana Agricultural College, North Dakota Agricultural College, South Dakota Agricultural College, Soo line, M. & St. L., C. & N.W., C. M. & St. P., Great Northern, Northern Pacific and Midland Continental railroads.

Due to the work of this committee, the copper-carbonate treatment was given wide publicity. A poster was prepared, copies of which were widely distributed. A six-page folder was also issued. A vast amount of printed material was placed in the local papers. The Department of Agriculture has been able to assist with the work by providing press notes, photographs, lantern slides for use in motion-picture houses, and radio talks. Brief Number 35, "Copper Carbonate for Stinking Smut of Wheat" was also distributed to members of the extension staff in the four States.

In a later issue Mr. R. C. Rose will report in detail on this work.

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### Jehle Assists Plant-Disease Survey

Dr. R. A. Jehle was in Washington during the latter part of January and the first week in February for the purpose of assisting with work in the plant-disease survey on the preparation of the annual summary of diseases of field crops. While in Washington Dr. Jehle found time to discuss extension work with investigators of the Bureau of Plant Industry.

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Gregory visits Washington

Dr. Charles Gregory spent the period February 15 to 25 in Washington. Although a great part of his time was taken for the preparation of two sets of lantern slides, one on the control of bunt of wheat, and the other on loose smut, Dr. Gregory found time for conferences with numbers of the Washington staff. The two lantern-slide lectures should be ready for use by the early part of the summer.

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News notes, extension articles, or suggestions with regard to subjects that might be discussed profitably in this news sheet should be addressed to:

Fred C. Meier,  
Extension Plant Pathologist,  
Bureau of Plant Industry and Office  
of Cooperative Extension Work,  
U. S. Department of Agriculture,  
Washington, D. C.

# THE STATE OF TEXAS

IN SENATE,  
January 10, 1901.  
REPORT  
OF THE  
COMMISSIONER OF THE  
LAND OFFICE,  
FOR THE YEAR  
1900.

ALBINO, J. W. & SONS, PRINTERS,  
DALLAS, TEXAS.

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